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How the AI project grew out of Cold War militarism, corporatism and chauvinism

AI and the techno-utopian path not taken

When artificial intelligence emerged in the mid-1950s, enhancing human potential was not on the agenda. However, some technological pioneers dared to think differently.

by Evgeny Morozov

The spectre of communism is once again haunting America, but this time it's digital. MIT economist Daron Acemoglu poses a provocative question: 'Would AI-enabled communism work? (1)' Venture capitalist Marc Andreessen wonders if 'China [will] create communist AI?' Even Republican firebrand Vivek Ramaswamy has jumped into the fray, comparing 'pro-communist AI' to Covid-19. Yet, amid the panic, no one really knows what 'communist AI' means. Would it follow China's tech model, with domestic platforms mirroring American corporations but under tight state control? Or would it embrace a European welfare state approach, centralising AI development within public institutions?

The latter option holds some appeal, especially given that today's AI race often prioritises speed over quality. Google's disastrous experiment with AI-powered search results (2), which suggested using glue on pizza and eating rocks to improve health, is a case in point. A state-funded approach to generative AI, with curated datasets and rigorous oversight, could produce higher-quality AI and charge corporate users higher prices, funnelling revenue back to content creators.

But is a socialised AI economy the best we can aim for, or is it too much of a capitulation to Silicon Valley? Can 'socialist' or 'communist' AI offer more than just a shift in ownership and control of data, models and computing infrastructures? Is there a deeper, more transformative potential in this strange idea?

Over the past few years, I've had two occasions to ponder this question from a historical vantage point. In my 2023 podcast 'The Santiago Boys', I explored Salvador Allende's visionary Project Cybersyn in the Chile of the early 1970s (3). Led by the charismatic British consultant Stafford Beer, this short-lived but ambitious project sought to harness the nation's limited computing resources to manage its economy more effectively. Often dubbed the 'socialist internet', Cybersyn tapped into Chile's telex network to transmit production data from state-run factories to a central hub in Santiago. Its true innovation, however, lay in an early form of machine learning designed to

empower workers. The project aimed to transcend the pitfalls of the Soviet model by using the tacit knowledge of factory workers, information typically concealed from capitalist managers.

Allende's technicians visited factories, engaging workers in mapping out production and management processes. This invaluable knowledge was then transformed into operational models with up to ten parameters per factory. Custom statistical software monitored this data, alerting worker-managers to emerging issues in (almost) real time.

At its core, Cybersyn envisioned a hybrid system where human intelligence was amplified by computing power. In ideal conditions, worker-managers, alongside Allende's bureaucrats, would convene in a dedicated Operations Room. There, they could leverage advanced visualisation tools to comprehend and manage the economy, regardless of their prior experience in management or economics. Allende's 'socialist AI' aimed to make worker-led governance more effective by making production-related knowledge – tacit and underutilised under capitalism – explicit and actionable, while enabling workers – the country's new leaders – to act with competence and confidence. Is this the 'socialist AI' we've been seeking?

Ecological intelligence

Working on my new podcast, 'A Sense of Rebellion', a follow-up to 'The Santiago Boys', I've continued pondering the meaning of this strange concept. At the heart of the series is Warren Brodey, a 100-year-old psychiatrist-turned-cybernetician-turned-hippy. In the late 1960s, Brodey, backed by a wealthy collaborator, established an experimental venture in Boston called the Environmental Ecology Lab.

They pursued a unique form of ecological intelligence, starkly different from the orthodox AI projects at MIT, just a few subway stops away. Brodey, once affiliated with MIT and friends with its AI pioneers Marvin Minsky and Seymour Papert, believed they were on the wrong track. For Minsky and Papert, intelligence was about abstract algorithmic rules and procedures that guide human reasoning. Decipher and enumerate them, and you can implement artificial intelligence in a computer.

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In contrast, Brodey and his five collaborators argued that intelligence is not confined to our heads. Instead, it emerges from interactions between people and their environments. Their lab's name, Environmental Ecology, reflected this belief that context is everything; on their own, abstract rules and procedures are meaningless. At the lab, they often illustrated this point with a simple example: the command 'Get undressed!' means vastly different things depending on whether it's said by a

doctor, a lover or a stranger in a dark alley. Achieving true AI, capable of grasping such subtle contextual differences autonomously, was, in the lab's view, a tall order. The task required computers to master an infinite array of concepts, behaviours and contexts, and their interrelationships. In other words, the project of building AI wasn't just about modelling human mental processes but, most importantly, about understanding the entire cultural framework of human civilisation – the very fabric that imbues context with meaning.

Instead of wasting their energy on the seemingly impossible mission of building such AI systems, the Environmental Ecology team dreamed of finding a way to use computers and cybernetic technologies to help humans enrich their environments, which in turn would enrich their lives. Brodey and his team saw information technologies not merely as tools for getting things done, but as instruments for thinking about and engaging with the world.

Imagine a responsive cybernetic shower that engages you in a dialogue about climate change and water scarcity, or a car that prompts reflections on the state of public transportation as you drive. They even created a dancing suit that allows people to influence the music they dance to, highlighting the intricate ecological relationship between movement and sound.

Helping 'cognitive mapping'

Their approach directly challenged the influential Frankfurt School's critique of instrumental reason overshadowing modern life. It wasn't technology but industrial capitalism that stripped our world of its ecological dimension, leading to the means-ends rationality condemned by Adorno, Horkheimer and Marcuse. The lab's innovative technology aimed to restore this lost ecological dimension, using sensors and computers to enhance human attentiveness to the hidden complexities behind the seemingly mundane. In a sense, the lab envisioned responsive and interactive technologies as facilitators of what the Marxist literary critic Fredric Jameson famously celebrated as 'cognitive mapping', helping us grasp complex processes that often defy comprehension.

What initially drew me to Brodey's story is how his eccentric ideas left a significant yet nearly invisible mark on our digital culture. During his brief tenure at MIT, he mentored a young Nicholas Negroponte, the pioneering techno-utopian whose work at the MIT Media Lab profoundly shaped popular views on the digital revolution (4).

Brodey championed 'responsiveness' as a core quality for the new breed of cybernetic devices they were building at the lab. He envisioned it as a way to foster dialogue between humans and machines and to deepen our ecological awareness. However, Negroponte repurposed this concept, rendering it more tractable, but at immense political and intellectual cost. He ended up aligning it with the traditional AI paradigm that emphasises machines understanding and catering to human needs.

The contrast between Brodey, the psychiatrist, and Negroponte, the architect, is striking: Brodey assumed people genuinely desired change and perpetual becoming, while Negroponte aimed to understand and fulfil our immediate needs. Brodey saw computers as enablers of transformation;

Negroponte, and later Silicon Valley, viewed them as tools for predicting and satisfying our existing, though unstated, wants.

Their philosophies diverged sharply. Negroponte focused on building quirky, eccentric machines, while Brodey prioritised creating quirky, eccentric humans. Despite writing a seminal piece on 'intelligent environments' in 1967, Brodey insisted such environments couldn't exist without people. To him, 'intelligence' was never a quality to be attributed solely to machines.

Interestingly, Cybersyn's operations room was a Brodey-esque intelligence environment par excellence, harnessing machine learning, visualisation techniques and interactivity to transform untrained workers into adept managers. Yet Brodey's vision extended far beyond the world of management, for he implied that with the right technology, all environments – from classrooms to kitchens to bathrooms – could become more intelligent, all while enriching people's ecological understanding. If this was 'socialist AI', it was socialism in the most everyday, practical sense.

Championing human enhancement

Brodey stood out from the rest of the 1960s computer establishment for another reason. While his peers viewed AI as a tool for human augmentation – machines taking over mundane tasks to boost productivity – Brodey envisioned something deeper. He championed human enhancement, a concept that pursues goals other than productivity and efficiency (5).

The distinction between the two paradigms is subtle, but crucial. Augmentation is like using GPS to navigate unknown terrain: it helps us get more done, faster. Yet the technology drives the productivity boost, not us. Such gains are fleeting; without technological crutches such as our GPS-enabled mobile phones, we are as helpless as before. Enhancement, on the other hand, leverages technology to develop new skills. Imagine honing an innate sense of direction through advanced memory techniques or learning to read natural signs and celestial patterns. In essence, augmentation deskills us in the name of efficiency, while enhancement upskills us, fostering a richer interaction with the world. This fundamental difference shapes our integration of technology, determining whether we become passive operators or creative artisans.

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Brodey developed these insights while participating in a semi-secret US government programme in the early 1960s. The CIA had the bright idea to gather talented blind people from across the country, teach them Russian, and have them listen to intercepted Soviet communications. The assumption was that their blindness had heightened their other senses, surpassing those of sighted analysts. As a psychiatrist, Brodey spent years with these blind individuals, seeking to understand

the internal and external cues they used to develop their enhanced sensory capacities. This led him to a groundbreaking realisation: all of us – not just the blind – could develop richer perceptual abilities, enhancing our senses of smell, touch and hearing in profound ways.

In positing that all of us can develop artist-like sensibilities, his human enhancement programme had a poetic dimension. However, Brodey, ever the pragmatist, believed that computers were the key to its realisation. By making internal and external parameters – from body heat to moisture to light quality – explicit, we could learn to master this subtle language. (Brodey later proposed to NASA, where he worked as a consultant, training its astronauts using these same techniques.)

Brodey eventually took his vision of human enhancement to MIT, aiming to establish it as a serious research programme. However, he faced significant resistance, not only from the conservative AI establishment but also from those who feared the concept had dark, Nazi-like overtones. Wasn't he proposing to experiment on people? Such fierce opposition forced Brodey to turn to private donors. Fortunately, he had two wealthy friends who joined his efforts.

The crucial distinction between human enhancement and human augmentation – their susceptibility to automation – has become glaringly evident only decades later. Today, tools based on generative AI threaten not just to augment the work of artists and writers but to replace them entirely. Augmentation aims to create machines that think and perceive like humans, potentially rendering human skills obsolete. In stark contrast, enhancement uses machines to help humans think and perceive in entirely new ways.

Brodey's vision was bold, especially when one considers that for most of the 1960s counterculture, technology was either something soulless and anonymous to keep away from, or a means of personal liberation at some back-to-land commune. Brodey's intelligent technologies promised something else: an enrichment of our tastes and an expansion of our skillsets. They wouldn't automate humanity into obsolescence or lead to the homogenous, standardised existence many feared from the rise of machine civilisation. Instead, they could unlock new realms of human potential, ensuring technology served to elevate, not diminish, human experience.

Brodey dismissed politics

Brodey formulated many of his insights in the early 1960s, years before the lab got under way. This was a tumultuous period when his professional and family life was unravelling. Once a respected member of the American establishment, he was increasingly drawn to its most avant-garde fringes. Like many American hippies of that era, Brodey dismissed politics as irrelevant. Consequently, he struggled to translate his ideas about human enhancement into political demands.

Enter Evald Ilyenkov, a Soviet Marxist philosopher and Brodey's near-contemporary (both were born in 1924, just a month apart). Working independently, Ilyenkov tackled similar issues, but from within the framework of Soviet 'creative Marxism'. His work provides a clearer understanding of what human enhancement means for communist and socialist projects.

Like Brodey, Ilyenkov worked extensively with the blind, recognising that both cognitive and sensory abilities are products of socialisation and technological interaction. He argued that the right pedagogical and technological environments could cultivate new skills that lie dormant within us. For Ilyenkov, communism was a state-led endeavour to unlock latent human abilities, allowing individuals to reach their fullest potential, regardless of social or natural barriers.

Incensed by Soviet bureaucrats' fascination with American-style AI, Ilyenkov penned one of the most compelling critiques of artificial intelligence in his essay On the Idols and the Ideals (1968) (6). He used a striking metaphor: building AI is like constructing a massive, costly factory to produce artificial sand in the middle of a desert. Even if the factory operated perfectly, why not simply use the abundant natural sand, human intelligence? Ilyenkov's critique, written in 1968, remains relevant today. We are still ensnared in that same desert, justifying the artificial sand factory's existence while overlooking a fundamental reality: perhaps no one, except the military and its capitalist benefactors, actually needs this facility.

Brodey, tapping into a metaphor from Marshall McLuhan, likened the impact of his ecological technologies to a fish suddenly grasping the existence of water. Similarly, it's time someone enlightened the AI-obsessed denizens of the sand factory about the vast desert beyond its walls – a desert teeming with creative, unpredictable and poetic intelligence.

The big unresolved question is this: will we ever achieve true human enhancement if we continue to operate with concepts like 'artificial intelligence', which seem antithetical to the very mission of human development?

Rigid policing of AI champions

In reality, the cost of building artificial intelligence extends far beyond the billions squandered on development since the 1950s. It is also profoundly personal, reflecting the ruthlessness of the Young Turks who championed AI's rise. Their aggressive fundraising and rigid boundary policing marginalised the contributions of visionaries like Stafford Beer and Warren Brodey, who were never at ease with the AI label.

Brodey and Beer, who did meet shortly before the latter's death in 2002, came from starkly different backgrounds. Beer was a former business executive and a proud member of Britain's elitist Athenaeum Club, while Brodey grew up in a middle-class Jewish family in Toronto. Despite their differences, they shared a disdain for the scientific discipline of AI and its dogmatic practitioners. Both men found a mentor in Warren McCulloch, a towering figure in cybernetics – a set of ideas that Brodey and Beer found more appealing than those of artificial intelligence, even if the early practitioners of the latter used to frame their own discipline as just a natural evolution of the former. But evolution this wasn't: in many respects, AI was a regression from the original cybernetic agenda.

Cybernetics emerged in the immediate aftermath of the second world war, when pioneers from diverse fields – mathematics, neurophysiology, engineering, biology, anthropology and more – recognised striking similarities in their research agendas (7). They were all grappling with

complex, non-linear processes where separating causes from effects was becoming impossible. What appeared to be an effect of one natural or social process could simultaneously be the cause of another.

A new vocabulary was needed to discuss these phenomena, leading to concepts like feedback loops and circular causality. This interdisciplinary approach allowed scholars familiar with the cybernetic jargon to analyse processes in machines, human brains and societies using the same conceptual framework.

Thus, cybernetics was not a scientific discipline but a philosophy emphasising mutual causation and the entanglement of seemingly unrelated phenomena. It stood alongside other philosophies, from reductionism to holism, and materialism to functionalism. Leading cybernetic thinkers did not abandon their primary fields; they remained dedicated mathematicians, neurophysiologists, anthropologists and biologists. However, they now asked cybernetic questions, enriching their understanding with this new philosophical lens.

Initially, cybernetics offered a way to use machines as models to better understand human intelligence, not to replicate it. This approach wasn't so different from economists using hydraulic models to study inflation or unemployment. No one claimed these models were the real economy, but they provided crucial insights into key relationships.

Meeting the demands of the military

However, when artificial intelligence burst onto the scene in the mid-1950s, it did so with a mission both bold and unapologetic: to stand apart from cybernetics and pioneer a new frontier where machines could 'think' like humans. But this quest wasn't about unlocking the mysteries of human cognition. It was about meeting the demands of its chief patron: the military. The objective was clear and pragmatic – to build machines capable of tackling tasks and solving problems tailored to military strategy and operations. From the outset, AI research was steered by the imperatives of defence, setting a course that would define its evolution.

For example, some early projects inspired by cybernetic philosophy – like the effort to build artificial neural networks – were quickly repurposed to serve military agendas. Suddenly, these neural networks were no longer seen as a means to unravel the complexities of human cognition. Instead, they became – much like the paradigm of human augmentation – powerful tools to assist human operators in analysing aerial footage for enemy ships or oil tankers. The ambitious quest to create 'artificial' intelligence ended up cloaking mundane military contracts in a veneer of scientific prestige.

Compared to cybernetics, there was little interdisciplinarity in this fledgling field. AI was dominated by brilliant, ambitious young mathematicians and computer scientists who found cybernetics too abstract, philosophical and potentially subversive. By then, Norbert Wiener, the father of cybernetics, had aligned himself with the labour unions and criticised the military, a stance hardly conducive to Pentagon funding. In contrast, AI, with its tantalising promise of autonomous weapons, faced no such branding issues.

Augmentation deskills us in the name of efficiency, while enhancement upskills us, fostering a richer interaction with the world. This determines whether we become mere passive operators or creative artisans

From its inception, AI was a most peculiar scientific discipline. Unlike traditional sciences that seek to understand the world – occasionally through models – AI practitioners set themselves the task of constructing simplified models of a real-world phenomenon – intelligence – and then doing what they could to convince external observers that these models were indistinguishable from what they were modelling (a most confusing operation legitimated by the Turing Test). It's as if a group of renegade geographers founded a new discipline of 'artificial land', hoping to convince the rest of us that, soon there'll be no functional difference between the map and the territory: with advances in technology, the map will eventually become as good as what it represents.

In many respects, the journey – and the tragedy – of AI during the cold war, particularly in the United States, is a mirror of the trajectory of economics. Pre-cold war American economics was a vibrant, diverse discipline, deeply engaged with real-world dynamics. It emphasised the roles of power and institutions, from labour unions to the Federal Reserve, in shaping production and economic growth.

However, cold war imperatives redirected economics away from the tangible world. The field became fixated on abstract models, with real-world relevance becoming incidental. This strange obsession with optimisation, equilibrium, game theory and other theoretical constructs led to a discipline increasingly detached from actual institutions and behaviours.

While not entirely useless – some of this mathematical work underpins today's digital markets, from online ads to ride-sharing services – the occasional utility of a flawed research approach does not redeem it. The cold war's influence is one of the reasons why modern orthodox economics offers little insight into issues like inequality or climate change, often defaulting to market-based solutions.

Euphemism for capitalism

AI has followed a similar path. Celebrated as a technological triumph, it is often merely a euphemism for militarism and capitalism. Just as even the most orthodox economists might agree on some market regulation, the most critical AI advocates recognise the need to regulate and contain AI. However, they struggle to envision a future where AI does not dominate our understanding of intelligence. From its inception, AI was less a science – where end goals are open and unknown – and more a religion (albeit with an engineering twist). The objective was clear: to create a general-purpose, computer-based system capable of performing any task without explicit training. This vision, now known as Artificial General Intelligence (AGI), was the ultimate goal.

In yet another parallel, the cold war's technological imagination envisioned AGI much like its economic counterpart envisioned the free market: both were seen as self-organising, autonomous forces to which humanity must adapt. Both disciplines also overlooked the foundational elements that make the quest for AGI and free-market capitalism possible. Economics conveniently ignores the roles of colonial violence, patriarchy and racism, instead presenting capitalism as a natural extension of what Adam Smith famously described as the human propensity to 'truck, barter and exchange'.

Similarly, the standard narrative of AI's origins credits natural progressions in cybernetics, mathematics and logic, while being silent about the geopolitical and historical context. It's akin to discussing the rise of eugenics and phrenology as mere branches of biology and genetics, while forgetting to say a word about racism. However, as Yarden Katz highlights in his outstanding 2020 book *Artificial Whiteness* (8), the discipline of AI wouldn't exist without the cold war's militarism, corporatism and chauvinism. Can such a corrupt concept ever be reclaimed for progressive purposes? Or is dreaming of a 'communist AI' as futile as dreaming of humane sweatshops, pleasant torture devices or playful conveyor belts?

Reflecting on Stafford Beer and Warren Brodey's experiences, I've come to believe that instead of fantasising about 'socialist AI', we would be better off dropping that concept altogether. What we need to do is formulate a post-AI socialist technology policy, not find some leftist applications – or ownership models – to humanise existing AI.

The primary goal of this post-AI socialist technology policy would be to endow individuals, irrespective of class, race or gender, with access to institutions, infrastructures and technologies that augment their creative autonomy and allow them to develop their capacities to the fullest. In other words, we need to enact a switch from human augmentation to human enhancement.

This policy should build on aspects of the welfare state – education and culture, the domains of public libraries, universities and broadcasters – that are most detached from serving the more conservative imperatives (such as the socialised safety net) of the capitalist system. In this vision, a post-AI technology policy becomes an enabler of socialist educational and cultural policy, rather than an accelerator of neoliberal economics, as is the case with AI-oriented policy today.

Curiously, Brodey himself eventually understood that there's no socialist AI without, well, socialism. By the early 1970s, he recognised the futility of trying to realise his dreams of 'human enhancement' and 'ecological technology' in cold war America. It didn't help that Brodey and his collaborators made a principled stand against the Vietnam war, refusing funding from the Pentagon and even entities like MIT.

When I interviewed Nicholas Negroponte about his connections to Brodey, he mentioned that his mentor spurned any notion of a tenured position at MIT. Comfort wasn't his thing. Instead, Brodey chose to build a peculiar house out of foam and balloons deep in a New Hampshire forest. This was his own responsive, intelligent environment. This was too much even for admirers like Negroponte ('Not everyone wants to live inside a balloon,' he quipped at the time).

Brodey's vision was imbued with utopianism. Alongside his main collaborator, Avery Johnson, he hoped corporate America would adopt their vision of responsive, interactive products that foster new tastes and interests rather than exploit consumerist desires. However, corporations favoured Negroponte's more conservative, consumption-oriented version, turning interactivity into a means for machines to learn our anxieties and sell us more stuff.

Disillusioned, Brodey relocated to Norway in 1973, where he re-emerged as a Maoist, rethinking his ideas through a new political lens. He became an active member of the Workers' Communist Party, one of Europe's main Maoist strongholds, and even travelled to China to share his vision of 'responsive technologies' with Chinese engineers. For someone deeply involved in the cold war-era military, NASA and CIA-related projects in the 1960s, this was quite a transformation.

Having spent countless hours talking to him over the past decade (he still lives in Norway), I can attest that Brodey's life perfectly embodies the open-ended becoming he championed in the 1960s. Human enhancement has definitely worked for him, suggesting that perhaps it could for the rest of us too. All we need are the right technologies – and quite a bit of scepticism about AI, communist or not.

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Original text in English

(1) Daron Acemoglu, 'Would AI-enabled communism work?', Project Syndicate, 28 June 2023, www.project-syndicate.org/ [http://www.project-syndicate.org/].

(2) Stephen Morris and Madhumita Murgia, 'Google's AI search tool tells users to "eat rocks" for your health', *Financial Times*, London, 24 May 2024.

(3) Listen to Evgeny Morozov, 'The Santiago Boys [https://the-santiago-boys.com/.]', podcast, 2003,

(4) Negroponte, an early investor and columnist for Wired magazine, wrote a best-selling book that set the tone of most debates about the digital revolution, Being Digital, Alfred A Knopf, New York, 1995.

(5) Brodey's first published articulation of this agenda is in this 1967 article (even though he was already busy promoting it in 1964): Warren M Brodey and Nilo Lindgren, 'Human enhancement through evolutionary technology [https://ieeexplore.ieee.org/document/5215586/]', IEEE Spectrum, vol 4, no 9, New York, September 1967,.

(6) While this has not been translated from the Russian, a good summary of Ilyenkov's critique is available [http://www.radicalphilosophy.com/article/the-philosophical-disability-of-reason/] in English.

(7) The best recent guide to its rise remains Ronald R Kline, *The Cybernetics Moment*, Johns Hopkins University Press, 2017.

(8) Yarden Katz, *Artificial Whiteness: Politics and Ideology in Artificial Intelligence*, Columbia University Press, New York, 2020.